APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,478	01/16/2002	Wayne A. Tangen	10012290-1	1404

7590   07/29/2004

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EXAMINER
VU, TRISHA U

ART UNIT	PAPER NUMBER
2112	

DATE MAILED: 07/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
Office Action Summary		10/051,478	TANGEN, WAYNE A.
		Examiner	**Art Unit**	
		Trisha U. Vu	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _16 January 2002_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-19_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-19_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _16 January 2002_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _20020116_.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-19 are presented for examination.

Information Disclosure Statement

2.   The information disclosure statement filed 01-16-02 fails to comply with 37 CFR

1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that

portion which caused it to be listed; and all other information or that portion which caused it to

be listed. It has been placed in the application file, but the information referred to therein has not

been considered:

> Please provide a copy of the following reference since the website cannot be found:
>
> The Electronic Pages; created by Sven Rymenants; I2C-Bus – Features;
>
> http://www.geocities.com/SiliconValley/9540/mic_b000.htm; 4/11/2001; pgs 1-3

Claim Objections

3.   Claim 4 is objected to because of the following informalities: "the power-up pull **sources**

includes" (lines 1-2 of the claim) should be changed to "the power-up pull **source** includes".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
subject matter which the applicant regards as his invention.

4.   Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing

to particularly point out and distinctly claim the subject matter which applicant regards as the

invention:

Claim 4 recites the limitations "the switch" in line 2, "the source voltage" in line 3, and

"the common voltage" in line 4. There is insufficient antecedent basis for these limitations in the

claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
patent by another filed in the United States before the invention by the applicant for patent, except that an
international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
subsection of an application filed in the United States only if the international application designated the United
States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1, 3, 7, 8, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by

Simpson et al. (6,301,623) (hereinafter Simpson).

As to claim 1, Simpson teaches a serial bus expansion circuit, comprising: a bus

distribution circuit (MUX 25) selectively coupling a serial bus (SDA) to one of a number

of serial bus outputs (Figs. 4-5); a distribution controller (39) having a control output

coupled to a control input of the bus distribution circuit (Fig. 4); and a number of power-

up pull resistors coupling each of the serial bus outputs to a power-up pull source (Fig. 4

and col. 1-64).

As to claim 3, Simpson further teaches the bus distribution circuit is a multiplexer (MUX 25) (Fig. 4).

As to claim 7, Simpson further teaches a serial bus input (via input 53) in the distribution controller configured for coupling to the serial bus; and state circuitry (device register 55) in the distribution controller, the state circuitry generating a control signal that is applied to the control input of the bus distribution circuit in response to a selection message received via the serial bus, the selection message being addressed to the distribution controller (col. 5, lines 23-45).

As to claim 8, Simpson further teaches the state circuitry generates the control signal in response to a selection payload in the selection message (col. 5, lines 23-45).

As to claim 15, Simpson teaches serial bus expansion method, comprising: providing a bus distribution circuit (MUX 25) to selectively couple a serial bus (SDA) to one of a number of serial bus outputs (Figs. 4-5); determining a select one of the serial bus outputs to which the serial bus is to be coupled (using selection circuit 39); controlling the bus distribution circuit to couple the serial bus to the select one of the serial bus outputs; and providing a number of power-up pull resistors that couple each of the serial bus outputs to a power-up pull source (Fig. 4 and col. 1-64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
manner in which the invention was made.

6.   Claims 2, 4-6, 9-14, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable

Simpson et al. (6,301,623) (hereinafter Simpson) in view of The I2C Specification, Version 2.1,

January 2000 (hereinafter I2C Spec)

As to claim 2, the argument above for claim 1 applies. However, Simpson does

not explicitly disclose a resistance of each of the power-up pull resistors is greater than a

resistance of at least one external pull resistor coupled to the serial bus, thereby allowing

an external pull source to override the power-up pull source. I2C Spec teaches a

resistance of each of the power-up pull resistors is greater than a resistance of at least one

external pull resistor coupled to the serial bus (note at least Sections 13.1-2, 17.2, and

17.4). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include a resistance of each of the power-up pull resistors is

greater than a resistance of at least one external pull resistor coupled to the serial bus as

taught by I2C Spec in the system of Simpson to allow the external pull resistor to pull the

SDA line to a high voltage (Section 13.2).

As to claims 4-5, the argument above for claim 1 applies. However, Simpson

does not explicitly disclose the power-up pull source includes a state circuit that

sequentially switches in a first state coupling a source voltage to the power-up pull

resistors and in a second state coupling a common voltage to the power-up pull resistors

in response to a system power-up condition. I2C Spec teaches a includes a state circuit

that sequentially switches in a first state coupling a source voltage to the power-up pull

resistors and in a second state coupling a common voltage to the power-up pull resistors

in response to a system power-up condition (e.g. START and STOP conditions) (note at least Section 6.2 and Table 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement a state circuit that sequentially switches in a first state coupling a source voltage to the power-up pull resistors and in a second state coupling a common voltage to the power-up pull resistors in response to a system power-up condition as taught by I2C Spec in the system of Simpson to indicate a start condition.

As to claim 6, I2C Spec further teaches the switch alternatively couples each of the power-up pull resistors to a source voltage and a common voltage (note at least Section 6.2 and Table 4).

As to claim 9, the argument above for claim 1 applies. However, Simpson does not explicitly disclose an acknowledge bit in the selection message wherein the state circuitry applies the control signal to the control input of the bus distribution circuit upon an occurrence of the acknowledge bit. I2C Spec teaches acknowledge bit (at least Sections 7.1-2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an acknowledge bit in the selection message wherein the state circuitry applies the control signal to the control input of the bus distribution circuit upon an occurrence of the acknowledge bit as taught by I2C Spec in the system of Simpson to let the receiver to transmit an acknowledgement and thus ensure that the transferred data has been received by the receiver and the control has been applied to the bus distribution circuit concurrently (Section 7.2).

As to claim 10, Simpson teaches a system for serial bus expansion, comprising: means (39 and associated circuitry) for selecting one of a number of devices (15) to be coupled to a serial bus (SDA), wherein each of the devices is capable of communicating on the serial bus; means (MUX 25) for selectively coupling the serial bus to one of the number of devices (Figs. 4-5). However, Simpson does not explicitly disclose means for sequentially pulling a voltage potential of each of a number of serial bus inputs of the respective devices to a predefined source voltage potential and then to a predefined common voltage potential upon an occurrence of a system power-up condition. I2C Spec teaches means for sequentially pulling a voltage potential of each of a number of serial bus inputs of the respective devices to a predefined source voltage potential and then to a predefined common voltage potential upon an occurrence of a system power-up condition (high to low) (note at least Section 6.2 and Table 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to means for sequentially pulling a voltage potential of each of a number of serial bus inputs of the respective devices to a predefined source voltage potential and then to a predefined common voltage potential upon an occurrence of a system power-up condition as taught by I2C Spec in the system of Simpson to indicate a start condition.

As to claim 11, Simpson further teaches a number of power-up pull resistors coupling each of the serial bus inputs to a power-up pull source (Fig. 4).

As to claim 12, Simpson I2C Spec further teaches the power-up pull source is a switch that toggles between the predefined voltage source and the predefined common voltage source (note at least Section 6.2 and Table 4).

As to claim 13, Simpson further teaches the means for selecting one of the number of devices to be coupled to the serial bus further comprises means for generating a control signal based upon a selection message received via the serial bus and for applying the control signal to the means for selectively coupling the serial bus to one of the number of devices to direct a coupling of the one of the devices to the serial bus (col. 5, lines 23-45).

As to claim 14, Simpson does not explicitly disclose an acknowledge bit in the selection message wherein means for applying the control signal applies the control signal during an occurrence of the acknowledge bit. I2C Spec teaches acknowledge bit (at least Sections 7.1-2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an acknowledge bit in the selection message wherein means for applying the control signal applies the control signal during an occurrence of the acknowledge bit as taught by I2C Spec in the system of Simpson to let the receiver to transmit an acknowledgement and thus ensure that the transferred data has been received by the receiver and the control has been applied to the means for coupling concurrently (Section 7.2).

As to claim 16, the argument above for claim 15 applies. However, Simpson does not explicitly disclose providing for a resistance of each of the power-up pull resistors that is greater than a resistance of at least one external pull resistor coupled to the serial bus, thereby allowing an external pull source to override the power-up pull source. I2C Spec teaches providing for a resistance of each of the power-up pull resistors that is greater than a resistance of at least one external pull resistor coupled to the serial bus

(note at least Sections 13.1-2, 17.2, and 17.4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide for a resistance of each of the power-up pull resistors that is greater than a resistance of at least one external pull resistor coupled to the serial bus as taught by I2C Spec in the system of Simpson to allow the external pull resistor to pull the SDA line to a high voltage (Section 13.2).

As to claim 17, Simpson does not explicitly disclose alternatively coupling each of the power-up pull resistors to a source voltage and a common voltage. I2C Spec further teaches alternatively coupling each of the power-up pull resistors to a source voltage and a common voltage (note at least Section 6.2 and Table 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to alternatively couple each of the power-up pull resistors to a source voltage and a common voltage as taught by I2C Spec in the system of Simpson to indicate a start condition (Section 6.2).

As to claim 18, Simpson further teaches coupling each of the power-up pull resistors to the source voltage in response to a system power-up condition; and subsequently coupling each of the power-up pull resistors to the common voltage (high to low) (note at least Section 6.2 and Table 4).

As to claim 19, the argument above for claim 15 applies. However, Simpson does not explicitly disclose an acknowledge bit in a selection message wherein a control signal is applied to a control input of the bus distribution circuit concurrently with an occurrence of the acknowledge bit. I2C Spec teaches acknowledge bit (at least Sections 7.1-2). It would have been obvious to one of ordinary skill in the art at the time the invention was

made to include an acknowledge bit in a selection message wherein a control signal is

applied to a control input of the bus distribution circuit concurrently with an occurrence

of the acknowledge bit as taught by I2C Spec in the system of Simpson to ensure that the

transferred data has been received by the receiver and the control has been applied to the

bus distribution circuit concurrently (Section 7.2).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's

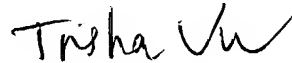disclosure, as the art discloses bus expansion system and/or I2C communication:

US Patent	6,092,138	Schutte
US Patent	6,622,188	Goodwin et al.
US Patent	6,233,635	Son
US Patent	5,526,497	Zilka et al.
US Patent	6,438,624	Ku et al.
US Patent	6,339,806	Foster, Sr. et al.
US Patent	6,253,268	Bjorkengren et al.
US Pub.	2001/0029554	Namba

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Trisha U. Vu whose telephone number is 703-305-5959. The

examiner can normally be reached on Mon-Thur and alternate Fri from 7:00am to 4:30pm.
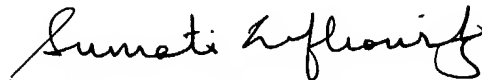
If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mark Rinehart can be reached on 703-305-4815. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Trisha Vu

Trisha U. Vu
Examiner
Art Unit 2112

uv

SUMATI LEFKOWITZ
PRIMARY EXAMINER